INSTRUCTIONS, TABLES AND DIAGRAMS

FOR THE EXAMINATION OF HUMAN CRANIA.

SERIES

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AMERICAN DENTAL ASSOCIATION.

Patrick, John T.

Instructions, Tables and Diagrams for the Examination of Human Crania.

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Patrick, John J. R.

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RULES

TO BE OBSERVED IN THE EXAMINATION OF PREHISTORIC CRANIA.

The diagram of the permanent teeth *only* will be used in connection with Table A, as children did not receive the same sepulture as adults in savage or prehistoric times—their remains are rarely if ever found. The diagram is furnished for the purpose of expedition in the examination of crania, and is to be used with the symbols that accompany it, and with no other marks or symbols. All other observations will be recorded on the tables.

In recording the remains of disease and irregularities, very few, if any, of the symbols will be needed in any one case; but in the examination of thousands of crania, most, if not all, may come into use; hence the necessity of having them present to the eye of the investigator during the examination.

Regularity is shown on the diagram; if, however, no marks of disease or irregularities are found on the crania examined, the diagram will remain as it is, unmarked; but the record number of the cranium must be recorded in its appropriate place on the table, and where a catalogue number is used in a collection of crania the catalogue number must follow the record number on the table.

The numerals on the diagram will be used to designate the tooth or teeth that are either grooved, pitted or granular, and will be marked on the last division under the heading, "condition of the enamel," on the table.

Rotation of teeth on their axis is to be marked on the diagram on the tooth so rotated, thus S. The degree of rotation is immaterial in this inquiry.

Partial division of the crowns of teeth will be marked on the diagram on the crown of the tooth so divided, thus V.

Supplemental or multiple tubercles will be marked on the diagram on the tooth at the site of their occurrence, thus ∩.

Crescentic enamel is to be marked with a crescent on the tooth so formed, thus ∪.

The location and extent of caries of the teeth will be marked in black on the diagram. As all bones take the color of the soil in which the subject was buried, the color of caries is unworthy of note. The progress of caries ceases with vitality.

As the inclination of the roots of teeth may be observed in most prehistoric crania, the roots of the teeth, when divergent, will be indicated by marking in the centre of the diagram, thus

Convergence of the roots of teeth will be marked in the centre of the diagram, thus

Fusion of the roots of two or more teeth will be marked on the diagram connecting the roots of the teeth, thus

Fusion of true teeth with aberrant teeth, mark on the diagram at the site of the true tooth so connected, thus

Confusion of two or more teeth will be marked on the diagram by connecting the crowns so confused with a bar, thus

When teeth previously separate in their germs or follicles subsequently become joined to their neighbors, owing to a non-development or absorption of the dental septa, the union is a pathological process of simple fusion. But when teeth become connected, either wholly or in part, during their inceptive development by a process of intimate union of the enamel, such union cannot be viewed in any other light than that of a process of physiological confusion.

Malposition by transposition of teeth will be indicated on the diagram by a curved line connecting the crowns of the teeth so transposed, thus

Malposition of teeth will be indicated by marking near the corresponding tooth on the diagram, either outside or inside the arch, thus

Supplemental teeth, either outside or inside the arch will be indicated on the diagram, at the site of their appearance, thus

Supplemental teeth are sometimes in alignment; they will be marked on the diagram, between the teeth they are in alignment with, thus

Supplemental teeth are as a rule well formed and are true teeth, though frequently smaller than the regular series.

Aberrant teeth will be marked on the diagram at the site of their appearance, thus

Aberrant teeth are irregular in form and size.

III.

Diminution in the number of teeth will be marked on the diagram, on the teeth, at the site of the deficiency, thus

The partial development or the non-development of the intermaxillary bones is the cause of cleft palate, with or without hare-lip, single or double; but a partial deficiency in the development of the intermaxillary bones does occur, without hare-lip or cleft palate, by a non-development of the incisive process, and consequently carries no incisive teeth.

The intermaxillaries may be vertically or laterally deficient in development. In a vertical deficiency all of the incisors may be present, but too short to occlude with the lower incisors. In a lateral deficiency, one or both of the lateral incisors are usually absent and the lower incisors upon occlusion pass over the upper, and the maxillaries are changed in form by correlation.

Teeth that are lost during the life of the subject will show, at the site of the missing tooth or teeth, a contraction and diminution of the alveolar process (bony cicatrix), which mark on the teeth of the diagram corresponding to the missing tooth or teeth, thus

The loss of teeth after death (post mortem) will show the root cells of the teeth in the alveoli; these cells should be closely observed, as to direction, number, and size.

In the fusion of the roots of true teeth, the fusion of aberrant teeth with true teeth, the confusion of two or more teeth, supplemental teeth in or out of alignment, aberrant teeth in or out of alignment, diminution in the number of teeth, the malposition of teeth as well as the transposition of teeth, can be distinguished, one from the other, by the root cells. These cells will always reveal the character and position of the teeth that were implanted in them. Whatever may be revealed in the examination of the cells that inclosed the roots of missing teeth, the symbol for lost teeth will be used at the site of the missing tooth, on the diagram, thus

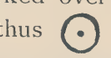
If the cell or cells should reveal any of the abnormal conditions represented in the column of symbols, the appropriate symbol will be marked on the diagram in connection with the symbol for "lost teeth."

Where the roots of teeth remain in the process, the crowns having been lost during the life of the subject, their position will be indicated on the diagram by one small circle for each root or fang, thus

Alveolar abscesses, or diseased antra of Highmore, leave cists or bony cicatrices after death; these, when recognized, will be marked at the site of their occurrence, alveolar abscess, thus

IV.

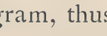
Diseased antrum, thus

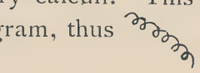
Inclusion of teeth within the process to be marked over the tooth or teeth, on the diagram, at the site of the inclusion, thus 

Lateral constriction of the maxillary bones, either single or double, and the degree of the constriction, can be shown on the diagram within the arch, by the following symbol

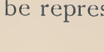
The horizontality of teeth where they occur will be marked on the diagram at the site of their occurrence and the position in which they are found, thus

The teeth which succeed the deciduous ones are sometimes imbricated (shingled) right and left or from the right to the left, and vice versa; the symbol denoting this deformity will be used on the diagram in accordance with the position of the imbrication found, thus

A diastema or space sometimes occurs in the dental series in the region of the cuspid and bicuspid teeth of the superior and inferior maxillaries: where this is observed, the following symbol will be used at the site of the diastema on the diagram, thus 

Hypertrophy of the alveolar margins surrounding the necks of the teeth, presenting an irregular puffy border, is produced by the resistance of the living tissue to the encroachments of salivary calculi. This condition of the process will be represented on the diagram, thus 

The presence of salivary calculi as to quantity, will be indicated by numerals on the table, from 1 to 4; the largest quantity present will be represented by figure 4.

Erosion of the enamel will be represented on the diagram, at the site of erosion, thus 

SUGGESTIONS.

Prognathism (forward jaws) must not be confounded with anteversion or projection of the anterior teeth.

Orthognathism (right or straight jaws) in which the teeth upon occlusion are partly over, partly under, and partly on each other.

Isognathism, (equal jaws) "square bite"—in which the incisor teeth do not lap, but impinge on each other at their cutting edges, like the molars, so that when viewed along the surface of mastication almost a perfect plane is presented to the eye.

A deficiency in the thickness of the external plate of the alveoli, may be the cause of *anteversion* of the anterior or succedaneous teeth. This structural deficiency while concealed in the living may be revealed in the examination of the post mortem subject; and redundancy in thickness of the external wall in the same region may be the cause of *retroversion*.

Asymetry of the dental arches by unequal growth, lateral crossing, atrophy of the jaws, right or left, mutilations and fractures of the teeth or jaws, during life, will be recorded on the table under the head of remarks.

The value of the facial angle—facial axis—or craniofacial angle as a test for intellectual faculties is fallacious; and while it may be of some value as a character in comparing the different races of mankind, the different methods of measurement render investigation in this direction unadvisable; it is therefore recommended that the facial angle, and the tests for brain capacity, be left to the craniologist until he establishes a rule of sufficient certainty to be of some practical value.

By far the largest number of prehistoric crania taken from graves or mounds are so far decomposed, that the calava is entirely gone while the maxillaries and teeth remain. The form of such crania, when obtained whole, are more or less distorted by the loss of tendon, cartilage, and the gelatine of the bone, and by the constant moisture and the pressure of the superimposed earth, rendering them totally unfit for anything like exact measurement, even when they can be recovered entire.

Aside from these considerations, the habit of carrying the child strapped to a board or flat piece of bark, the head being bound to the bark, produces a distortion or flattening of the occiput and a corresponding flattening of the whole cranium from the anterior to the posterior, so that the lateral diameter of many crania exceed the anterio-posterior diameter. Prehistoric crania are very friable; yet fifty years under a sandy soil is hardly sufficient time to deprive the bone of its gelatine. The period of burial is determined approximately by the condition of the bone, character of soil, etc.

Many crania, because they are taken from mounds, are supposed to be very old, and are labeled "Mound builder's skull," which lends to the skull an air of great antiquity; whereas there are few burial mounds that do not contain intrusive burials of very recent date.

There are no valid reasons for separating the so-called "Mound builders" from the present race of Indians, seeing that we have the statements of the early European adventurers that the *American Indians when first observed were active mound builders*. The worn condition of the teeth is no criterion by which to judge the age of the subject, but their general condition and development may serve for an approximation. There are no means of distinguishing sex in the human crania, except by the personal property always buried with the dead by savages at the time of interment, or by the recovery of the whole skeleton, when the size of

the pelvis might be a close approximation. The majority of Indian crania are well pronounced male; but many small and delicate crania are exhumed with all the war implements of a brave, which were buried with them

In regard to the "Inca-bone" (king-bone) being constant in the crania of the ancient Peruvians, or in the crania of the Incas of Peru, there is no knowledge. The sutures which commonly unite the parietal bones with the occipital sometimes fail to meet at the superior angle of the occipital, forming a space which frequently includes one or more wormian bones; these bones are sometimes very large, but they do not appear to be race characteristics, for they are found occasionally in the crania of all races.

Regarding the measurement of the dental arches—say the transverse measurement of the superior arch at the site of the first permanent molars and the depth of the palate at the median line of this measurement; there can be no object in such an investigation, excepting to show the futility of attempting to establish a typical dental arch or a model for a symmetrical dental series; for it has long been an established fact that the size of the teeth in human beings has no proportionate relation to the size of the body; very frequently, small persons have very large teeth, while persons of colossal size often have narrow and small teeth. Large persons usually have large jaws, but the teeth do not correspond to the size of the jaws as often as the jaws correspond to the size of the body, either in large or small persons. There are large jaws with small teeth, and small jaws with large teeth; the latter occur more frequently in small persons, while the former are of rare occurrence in large persons. It is utterly impossible to find a race or tribe of people, or even a family in which each member attains the same physical proportions.

As there appears to be a desire on the part of some to obtain measurements of the dental arch, separate diagrams will be furnished for that purpose, which must be returned with the books of tables and diagrams when the recording is completed.

The tables and instructions are bound in order that they be not separated, as they are designed for preservation in the archives of the American Dental Association, for future reference. After the tables are filled out and duly signed by the investigators, they must be returned to the Curator, without unnecessary delay, as the committee in charge of the investigation will make up their annual report from them. The tables with instructions can be obtained in book form, or the tables in single sheets, by addressing the Curator.

JOHN J. R. PATRICK,
BELLEVILLE, ILL.,
Curator of the Investigation.

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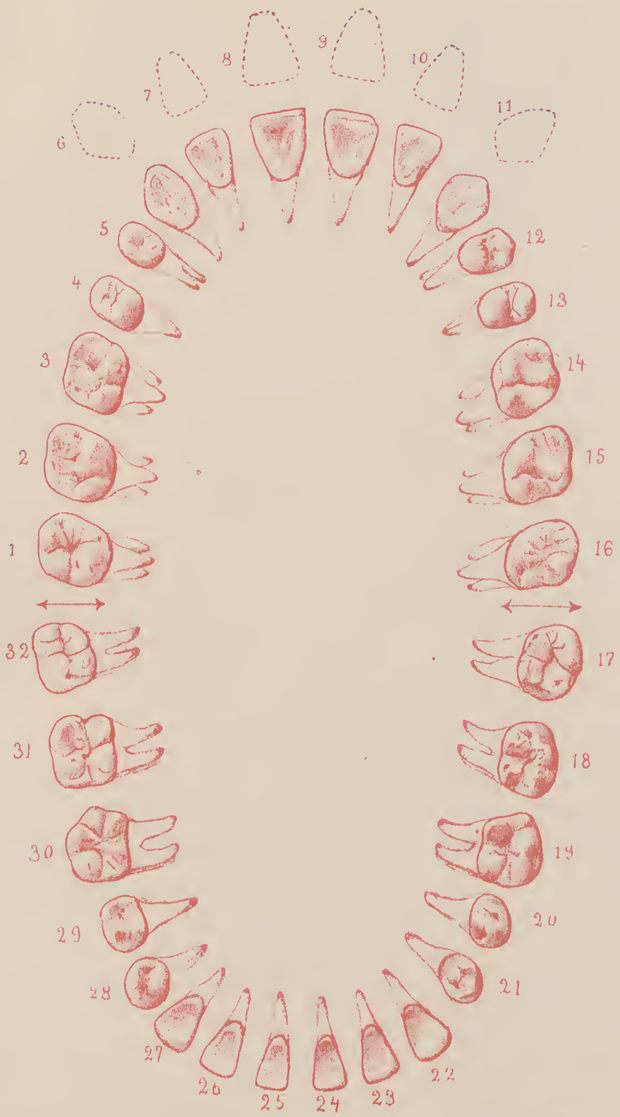
Information desired by the American Dental Association in regard to the Condition of the Teeth and Parts Adjacent in the Crania of Man, Prehistoric and Modern.

Record No. . Catalogue No.



Rotation of a tooth on its axis ..... S

Partial division of the crowns of teeth ..... S

Supplemental or multiple tubercles ..... ∩

Crescentic enamel ..... ⌣

Roots divergent ..... ⋀

Roots convergent ..... ⋁

Fusion of the roots of two teeth ..... ⚲

Fusion with aberrant teeth ..... ⚲

Confusion of two or more teeth ..... ⚲

Malposition by transposition ..... ⚲

Malposition outside or inside the arch ..... ⚲

Supplemental teeth outside or inside the arch ..... ⚲

Supplemental teeth in alignment ..... ⚲

Aberrant teeth marked at site of their growth ..... ⚘

Natural diminution in number of teeth, to be marked at the site of deficiency, thus ..... ||

Teeth missing where the process shows cicatrix ..... ⊕

Teeth lost from the process (post mortem) X

Where roots remain, one small circle for each root ..... ∘∘

Cist or alveolar abscess ..... ○

Diseased antrum ..... A

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Constriction of the maxillary bones ..... ∩

Horizontality of teeth, the circle to show direction of crown ..... ⚲

Imbrication of succedaneous teeth ..... ⚲

Diastema, single or double ..... ||

Hypertrophy of alveolar border ..... ⚲

Eroded enamel ..... ⚲

REMARKS.

NAMES OF OBSERVERS.

P. O. Address, ...

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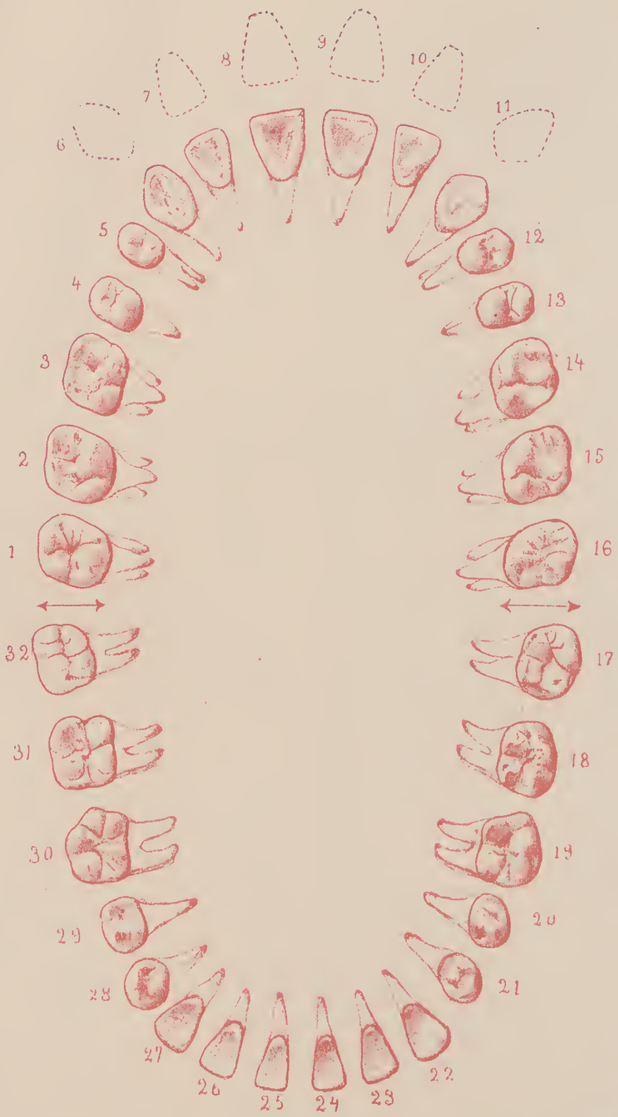

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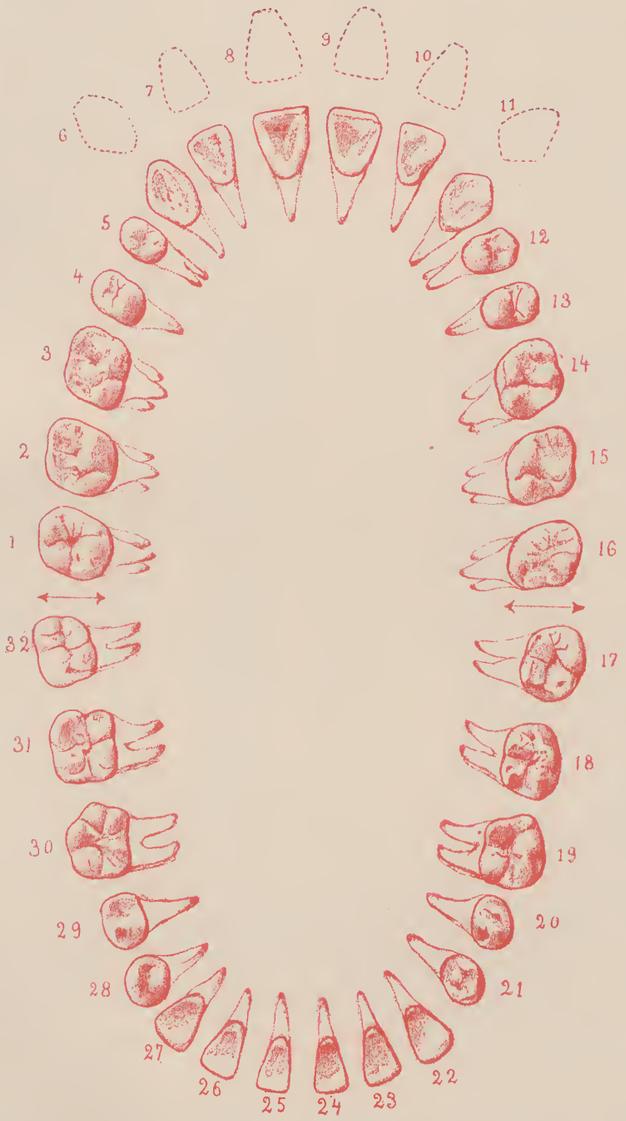

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